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ABSTRACT

The Flesch readability formula was used to analyze 192 100-word samples from selected matching issues of "Time" and "Newsweek." It was hypothesized that "immediate-reward" types of news, such as sports, social, and human interest events, would be significantly more readable (fewer syllables per 100 words and fewer words per sentence) than "delayed-reward" items, such as public affairs, economics, science, and education news. Items in the sports, cinema, and people/newsmakers sections served as immediate-reward material: and items in the business/economy, national affairs, and science/medicine sections served as delayed-reward material. There were no significant differences between the magazines for either readability scores, average sentence length, or number of syllables. The immediate reward items were significantly more readable than the delayed reward items. Immediate reward items averaged ten fewer syllables per 100 words and two fewer words per sentence than the delayed reward items. An examination of subject-by-subject differences indicated that the delayed/immediate reward classification system may not be sophisticated enough to explain all the differences in readability. (RL)

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THE COMPARATIVE READABILITY OF SIX SUBJECT CATEGORIES IN TIME/NEWSWEEK MAGAZINES: A STUDY OF MEDIA ACCEPTABILITY

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Concern over the readership of the media has drawn increasing attention in recent years as circulation figures continue to drop and publication costs increase. With growing concerns about postal regulations, mailing increases, and the elimination of Saturday mail deliveries, combined with energy costs, and inflationary fees for travel, newsprint, and all other things necessary for news media production, there is a great possibility of even larger drops in circulation as increased costs are passed on to the consumer. In the months and years ahead, if the public does not feel it is getting a product it can use, they will surely feel the economic urge to cut-back in those areas.

One procedure that has gained some popularity in explaining why certain sections of the public fail to use particular media products is the use of readability formulas or "reading ease" to see if the product is "digestible" or "palatable"--written on such a level that the public can understand and comprehend the messages it contains.

Obviously, competition in the marketplace is such that the reader of today's media wants a product that can be used and digested in the most efficent and timely manner as possible. The application of readability formulas makes it possible to match message construction--sentence lengths and polysyllable words--to the educational level necessary to comprehend such written communications.

Assuming that readers are selective in media choices and are less likely to attend to items written in a style that is difficult to comprehend, this study is designed to examine the comparative readability of similar subject-matter categories in nationally competing magazines.

The application of readability formulas to the print media have traditionally focused primarily on the newspaper medium.

Studies relating to this research question have found that various types of news content vary by subject matter. It has been noted that AP and UPI wire copy differ not only in readability[1] but across subject matter as well,[2] and that technical materials were more difficult to read that popular literature.[3]

To date, however, only two studies have been found that relate directly to magazine and magazine subject-matter readability.

Fowler and Smith[4] examined the comparative readability of newspapers and magazines across time periods. Although magazines were found to be more readable than newspapers, the study compared front page news to that of general magazine content and the authors questioned if "a more accurate picture of this situation might be seen if the present study were replicated using news-type magazines to see if in fact, magazines and newspapers differ in the presentation or readability of similar types of content matter."[5]

A study which did examine the comparative readability of a single subject matter across magazines was conducted by Funkhouser in 1969.[6] This study found that there were measurable differences in science writing across different types of magazines and attributed this primarily to the different educational levels of the reading audiences of the various sampled magazines (i.e., Reader's Digest, Life, Newsweek, Time, Saturday Review, Fortune, and Scientific American).

None have yet to examine the comparative readability of various sections of similar-type magazines. This study seeks to extend the Fowler and Smith study and that of Funkhouser and see if the readability of news-type magazines is different from that of newspapers and to determine whether the readability of various subject-matters differs as well.

As an aid to the selection of subject-matter categories and to aid in the development of hypotheses, this study utilized the immediate-reward delayed-reward classification system developed by Wilbur Schramm.[7]

The immediate-reward types of news is that which provides instant satisfaction for the reader. The kinds of news which may be expected to provide immediate-reward or instant satisfaction are news of crime and disaster, sports and recreation, social events, and human events.

Delayed-reward news, on the other hand, is news that does not effect the consumer until later. The kinds of news that are included in this classification are public affairs, economics, social problems, science, education, weather, and health. Often, delayed-reward items may bring unpleasant consequences for the reader while immediate-reward news can bring instant satisfaction.

Danielson and Bryan found some support that stories classified along these lines ("hard news" vs. "soft news") did vary in readability and offered this as an explanation of reader interest and selectivity in different parts of the newspaper. They noted "it is possible that people--particularly people with less formal education--avoid hard news because they have learned that it is usually written in a more difficult style."[8]

Because of the inherent characteristics of various types of news items (science, medicine, business, national affairs needing precise, multisyllable words, etc. to carry their meaning while sports, entertainment, and social events can be less formal) readers may in fact stereotype the items as to their readability and usefulness to them.

It is therefore hypothesized:

H_1: Immediate reward items will be significantly more readable (easier to read) as measured by the Flesch readability formula than will be delayed reward items.

H_2: Immediate reward items will have significantly fewer syllables per 100 words, a component of the Flesch formula, than will delayed reward items.

H_3: Immediate reward items will have significantly fewer words per sentence, a component of the Flesch formula, than will delayed reward items.

METHODOLOGY

The study period consisted of eight issues each of Time and Newsweek magazine selected randomly from those published from November, 1979 to February, 1980. Matching issues were selected so that hopefully similar topics would be covered and across-subjects variance might be reduced.

Magazines were analyzed by six subject matter categories representing delayed reward and immediate reward classifications. The three categories of subject matter coded as immediate reward items were Sports, Movies/Cinema, and People/Newsmakers. The three subject matter categories representing delayed reward items were Business/Economy, National Affairs, and Science/Medicine items.

A total of 192, 100-word samples were analyzed. Two 100-word samples were taken from each of the six subject categories in each issue.

Photo cutlines and items less than 100 words were eliminated if selected. Readability was based on the revised Flesch readability formula[9] which used average sentence length and average number of syllables per 100 words to compute readability scores.

Means were computed for the two magazines for overall readability, average sentence length, and number of syllables per 100 words to determine whether the two magazines differed and separate means were computed for the six subject-matter categories and for combined delayed reward and immediate reward items.

T-tests were used to compare sample means and the $p < .05$ alpha level was required for statistical significance.

Coder reliability was obtained by having an independent coder recode 20 randomly selected passages (approximately 10 percent of the study data). Pearson product-moment correlations between the author and the coder were found to be greater than .95 for number of syllables per 100 words, average sentence length, and resultant Flesch readability scores; all were significant.

FINDINGS

The mean readability score for all items was 56.5, a value corresponding to what Flesch would classify as one needing some high schooling to understand and a value which did not differ significantly from the 58.8 value found for magazine readability in the Fowler and Smith study in 1979. The mean number of words per sentence was 22.5 and the number of syllables per 100 words was 150.9.

The comparative readability for all items was not found to differ significantly between Time and Newsweek magazine for either readability scores, average sentence length, or number of syllables (see Table 1). Only for one of the six subject categories were significant differences found between the two publications. Number of words per sentence for movies was found to be significantly higher in Newsweek than in Time (24.14 to 19.92) and number of syllables per 100 words was found to be significantly higher for Business/Economy items in Newsweek than in Time (163.5 to 153). In neither case were there significant differences in resultant readability scores. The only instance where the two magazines were found to be statistically different on the readability of a single subject category was the Science/Medicine category where Newsweek material was found to be significantly

less difficult to read than similar material in Time (55.35 to 44.79; $p = .02$).

Hypothesis one, that immediate reward items would be significantly more readable than delayed reward items was supported by the study (see Table 2).

The immediate reward item scores of 61.29 were significantly higher (or easier to read) than were the 51.74 scores of the delayed reward items. A Flesch score of 60 corresponds to approximately the 9th grade educational level and the Flesch score of 50 to the 11th or 12th grade educational level. Immediate reward items were easier to read.

Likewise, hypothesis two, that immediate reward items would contain significantly fewer syllables per 100 words, and hypothesis three, that immediate reward items would have shorter sentences, were both supported by the study.

Immediate reward items averaged 10 fewer syllables per 100 words (146.19 to 155.61) and two fewer words (21.41 to 23.57) per sentence.

An examination of individual items ranked according to readability scores (see Table 3) follows a pattern similar to that found by Danielson and Brown. Individual t-tests between the readability scores (see Table 4) indicates three rather than two groupings of items. Group one would be comprised of Sports and People/Newsmaker items; Cinema/Movies and National Affairs items would comprise the second grouping; and Business/Economy items would comprise group three. The Science/Medicine items complicate the situation in that they are not significantly different from National Affairs items or from the Business/Economy items but both of these groupings are significantly different on readability scores.

One might explain the differences in that Science/Medicine was the only subject-matter category that differed significantly between magazines. The Science/Medicine items had a significantly greater number of syllables per 100 words than National Affairs items (157.25 to 151.36; T = 2.24, p = .03) and a significantly fewer words per sentence than Business/Economy items (21.93 to 24.81; T = 2.14, P = .03).

CONCLUSIONS AND DISCUSSION

In general one would conclude that there are differences in the readability levels of subjects within publications. Delayed reward items, as a group were found to be significantly more difficult to read than were immediate reward items; they used significantly more syllables per 100 words and their average sentence length was significantly longer.

An examination of subject-by-subject differences indicates that one cannot necessarily rely on the delayed reward/immediate reward classification; it may be much more complicated than one would expect.

Cinema/Movie items were significantly different from Sports and People/Newsmaker items. This difference seems to lie in the fact that the Cinema/Movies categories contain significantly more syllables per 100 words than do the other immediate reward categories. In examining the individual items coded for this category it seems that these "reviews" were written on a high, sophisticated level with the use of flowery, descriptive phrases with the intention of "impressing" rather than "expressing". In an attempt to create a symbolism of the movie, etc. under discussion, the authors seemed to rely heavily on the high-brow expressionism a professional reviewer would use to impress his audience.

In the separation of National Affairs items from Business/Economy news, one can see that the syllables per 100 words is again the differentiating

factor. Quite possibly the demand for precision and the desire for exactness has caused the business sector to create new terminology that makes this area less readable than others. It was noted that in the Science/Medicine sections that their readability seemed easier although their items also dealt with precise, complex topics and the Science/Medicine section did have a significantly greater number of syllables per 100 words than did the National Affairs items.

It should also be noted that the newstype magazines did not differ from those studied by Fowler and Smith in 1979 (Cosmopolitan, Atlantic Monthly, and Harper's Weekly) in mean readability. It is quite possible that magazines do not differ as markedly as newspapers.

Further examinations of these findings are necessary.

In line with the findings of Westmorland et al[10] that male and female student writings' do differ, experimentation into who the authors (sex, etc.) of such pieces are and who the intended audience is might give plausible explanation for subject matter differences.

Quite possibly the correlation between hard news and hard writing is inevitable--the harder the materials are to explain, the greater the difficulty one has in presenting such material.

This study has indicated though that the differences one might expect and those in the sampled publications are not necessarily parallel.

Regardless of which argument is correct, if more work results in more readable stories, then the reader and the magazine will surely benefit in the end product.

Table 1

Average Words Per Sentence, Syllables/100 Words, Readability Scores, and Significance Levels for Overall Items for Time and Newsweek Magazines

	TIME	NEWSWEEK	T-Test	P
Average Words Per Sentence	22.47	22.50	.03	.97
Syllables Per 100 Words	150.71	151.09	.19	.85
Readability Scores	56.85	56.18	.38	.71

(N = 192; 96 per group)

Table 2

Average Words Per Sentence, Syllables/100 Words, Readability Scores, and Significance Levels for Delayed Reward and Immediate Reward Items

	Immediate Reward	Delayed Reward	T-Test	P
Average Words Per Sentence	21.41	23.57	2.93	.004
Syllables Per 100 Words	146.19	155.61	5.16	.000
Readability Scores	61.29	51.74	5.80	.000

(N = 192; 96 per group)

NOTE: The higher the score the more readable.

Table 3

Average Words Per Sentence, Syllables/100 Words, and Readability Scores Ranked by Ease of Readability for Individual Delayed Reward and Immediate Reward Items.

Type Item	Average Words Per Sentence	Syllables Per 100 Words	Readability Scores
Immediate Reward			
Sports	21.43	142.18	64.75
People/Newsmakers	20.74	143.00	64.67
Cinema/Movies	22.03	153.39	54.46
Delayed Reward			
National Affairs	23.96	151.36	55.71
Science/Medicine	21.93	157.25	51.57
Business/Economy	24.81	158.25	47.93

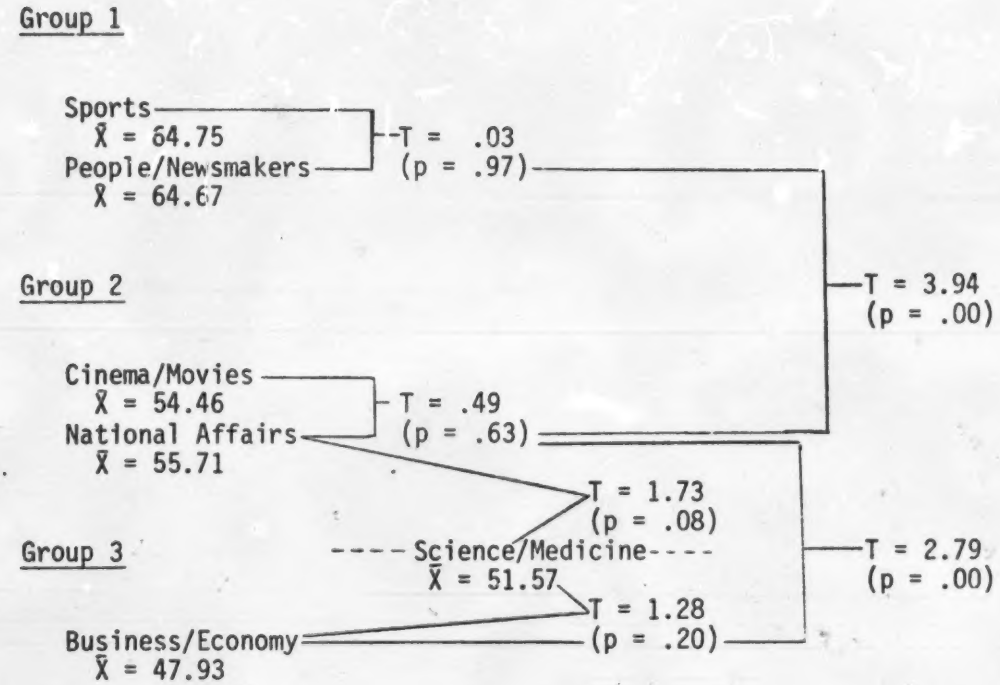
N = 192; 32 per grouping)

NOTE: the higher the score the more readable.

Table 4

T-Tests and Significance Levels Between Individual Items

On Readability Scores



$\bar{X}$ = mean readability score

FOOTNOTES

[1]Robert L. Hoskins, "A Readability Study of AP and UPI Wire Copy," Journalism Quarterly, 50:360-363 (1973).

[2]Wayne A. Danielson and Sam Dunn Bryan, "Readability of Wire Stories in Eight News Categories," Journalism Quarterly, 41:105-106 (1964).

[3]William F. Kwolek, "A Readability Survey of Technical and Popular Literature," Journalism Quarterly, 50:255-264 (1973).

[4]Gilbert L. Fowler and Edward J. Smith, "Readability of Newspapers and Magazines Over Time,' Newspaper Research Journal, 1:3-8 (1979).

[5]Ibid., p. 8.

[6]G. Ray Funkhouser, "Levels of Science Writing in Public Information Sources,"Journalism Quarterly, 46:721-726 (1969).

[7]Wilbur Schramm, "The Nature of News," Journalism Quarterly, 26:259-269 (1949).

[8]Danielson and Bryan, p. 106.

[9]Rudolph Flesch, The Art of Readable Writing (New York: Harper & Brothers Publishers, 1949) and James N. Farr, James J. Jenkins and Donald E. Patterson, "Simplification of the Flesch Reading Ease Formula," Journal of Applied Psychology, 35:333-37 (1951).

[10]Reg Westmorland, Douglas Starr, Keith Shelton, and Yorgo Pasadeos, "News Writing Styles of Male and Female Students," Journalism Quarterly, 54:599-601 (1977).